

What is claimed is:

1. A magnetic garnet single-crystal film, comprising:  
a lattice constant of the magnetic garnet single-crystal  
which does not vary or gradually decreases, and then increases  
in the direction in which the film grows.

2. A method for producing a magnetic garnet  
single-crystal film by growing a Bi-substituted magnetic garnet  
single crystal in a mode of liquid-phase epitaxial growth,  
comprising the step of:

controlling a lattice constant of the growing magnetic  
garnet single crystal so that the lattice constant does not  
vary or gradually decreases with the growth of the single-crystal  
film, and then increases with the growth of the single-crystal  
film.

3. A Faraday rotator produced by working a magnetic  
garnet single-crystal film formed in a mode of liquid-phase  
epitaxial growth, comprising:

a lattice constant A of the light-receiving surface of  
the magnetic garnet single-crystal film;

a lattice constant B of the light-emitting surface of  
the magnetic garnet single-crystal film; and

a lattice constant C of the region of the magnetic garnet

single-crystal film spaced by nearly the same distance both from the light-receiving surface of the film and from the light-emitting surface thereof;

wherein the lattice constants A, B and C satisfy the requirement,  $(A + B)/2 > C$ .